Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the above-identified application.

Listing of Claims

1. (Currently Amended) A method for converting ~~video data format from interlaced scan rate to progressive scan rate~~ interlaced video fields into progressive video fields, said method comprising:

~~of a perceptual model to determine membership probabilities of field samples (pixels) with regard to a plurality of image components of a field, said determination prioritizes the contributions from said image components, where the said image components are a static image component, a texture image component, and a motion image component~~

computing static, motion, and texture components for all pixels of a sub-partition of an interlaced field;

determining portions of the static, motion, and texture components that contribute to a pixel of a progressive field;

wherein the portions of the computed static, motion, and texture components that contribute to the pixel of the progressive field is determined using a perceptual model.

2. (Currently Amended) The method of claim 1~~, where the interpolated samples of the final progressive frame is obtained by~~ further comprising:

adjusting one or more of the static, motion, and texture components;

summing the ~~modulated or adjusted versions of a plurality of image~~ the adjusted one or more static, motion, and texture components.

3. The method of claim 2~~, where a current field, a past field and a future field are all partitioned into blocks of samples (pixels), and the image components are computed for samples of a block of the said current field based on block-based and sub-block-based perceptual parameters obtained from samples of the said current field, said past field, and said future field~~ further comprising receiving a past interlaced field and a future interlaced field, wherein the interlaced field is received after the past interlaced field but before the future interlaced field.

4. (Currently Amended) The method of claim 3, where adjustment of the static image component ~~is comprised of~~ comprises an act of reducing ~~the~~ said static image component by a ~~modulated version of the said component~~ modulation factor *Ra*, where ~~the~~ said modulation factor ~~is *Ra* and~~ is ~~comprised of~~ computed by scaling an *aed* factor by *BAI,* wherein ~~the~~ said *aed* factor is derived by computing ~~the~~ an average energy of ~~the~~ a difference between a block in the future field and a prediction of ~~the said~~ a corresponding block in the past field, and further, ~~the~~ said *BAI* is obtained by computing ~~the~~ an image difficulty of a block in ~~current~~ the field.

5. (Currently Amended) The method of claim 4, where the modulation factor *Ra is* ~~incremented by a term comprised of modulating *Ra* by~~ further modulated to create a second modulation factor *RSa,* ~~the~~ said *RSa* is comprised of scaling an *aeds* factor by *SVAI,* ~~the~~ said *aeds* factor is derived by computing ~~the~~ an average energy of ~~the~~ a difference between a sub-block of the block in the future field and a prediction of the ~~said~~ a sub-block of the corresponding block in the past field, ~~the said sub-blocks being subset of blocks of claim 4 or have some overlapping pixels,~~ and further, ~~the~~ said *SVAI is* obtained by computing ~~the~~ an average vertical image difficulty of the said sub-block in the future field and a third sub-block in the past field, the third sub-block in the past field having ~~the same~~ coordinates ~~as the~~ equal to coordinates of said sub-block in the future field.

6. (Currently Amended) The method of ~~claims 4 and~~ claim 5 where ~~both~~ the block and sub-block predictions use the same motion information.

7. (Currently Amended) The method of claim ~~3~~ 4, where the static image component is modulated by a factor *Rm,* ~~said~~ wherein *Rm* is ~~comprised of~~ calculated by scaling the *aed* factor of ~~claim 4~~ by *aed0* where ~~the~~ said *aed0 is* derived by computing the average energy of the difference between ~~a~~ the block in future field and ~~a~~ the corresponding block in the past field, ~~the~~ said corresponding block in the past field having the same coordinates as the said block in future field.

8. – 14. (Cancelled)

15. (Currently Amended) The method of claim ~~3~~ 4, when the nominal values of *Ra* and *aed* are large, only contributions from the texture image component and the motion image component are used~~, the said values of *Ra* and *aed* are defined in claim 4~~.

16. (Currently Amended) The method of claim 15, when a small amount of motion for a block of samples is detected, ~~the~~ said block has a dominant texture image component.

17. – 33. (Cancelled)

34. (Currently Amended) A method for converting video data from interlaced format to progressive format, comprising:

determining a probability of a first image component of a field, wherein the determination assigns a priority to the first image component; and

determining a probability of a second image component of ~~a~~ the field, where the determination assigns a priority to the second image component;

receiving first and second fields, wherein the field is received before the second field but after the first field;

partitioning the first field to produce a first block of samples;

partitioning ~~a~~ the second field to produce a second block of samples;

determining a first image component for the first block of samples;

determining a second image component based on the second block of samples;

modulating the first image component based on an average energy (*"aed"*) of a difference between the second block and a prediction of the first block in the first field scaled by an image difficulty of a block *("BAI")* in the field.

35. – 37 (Cancelled)

38. (Currently Amended) The method of claim ~~37~~ 34, further comprising:

computing ~~the~~ an average energy of the differences between a sub-block in ~~a future~~ the second field and a prediction of ~~the~~ a corresponding sub-block in ~~a past~~ the first field;

computing ~~the~~ an average vertical image difficulty of the sub-block in the ~~future~~ second field and the corresponding sub-block in ~~past~~ first field, the sub-block in ~~past~~ first field having the same coordinates as the sub-block in ~~future~~ second field;

modulating the first image component based on the average energy ~~of the differences between a sub-block in the future field and a prediction of the sub-block in a past field~~; and

modulating the first image component based on the average vertical image difficulty ~~of the sub-block in the future field and the sub-block in past field, the sub-block in past field having the same coordinates as the sub-block in future field~~.

39. (Cancelled)

40. (Currently Amended) The method of claim ~~36~~ 34, further including:

computing ~~the~~ an average energy (*"aed0"*) of ~~the~~ a difference between a block in ~~a future~~ the second field and a corresponding block in ~~a past~~ the first field, the block in the ~~future~~ second field having a first set of coordinates, the corresponding block in the ~~past~~ first field having a second set of coordinates, wherein the first set of coordinates and the second set of coordinates are substantially equal; and

modulating the first image component based on the average energy of the difference between the block in the ~~future~~ second field and the corresponding block in the ~~past~~ first field.

41. (Currently Amended) The method as recited in claim ~~36~~ 34, further including: modulating the second image component based on an average energy ("*aed*") of a difference between a block in ~~a future~~ the second field and a prediction of the corresponding block in ~~a past~~ the first field scaled by an image difficulty of a block *("BAI")* in the ~~current~~ field.

42. – 69. (Cancelled)